



PATENT

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For: SYSTEM, METHOD AND APPARATUS
 FOR SMALL PULMONARY NODULE
 COMPUTER AIDED DIAGNOSIS FROM
 COMPUTED TOMOGRAPHY SCANS

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INFORMATION DISCLOSURE STATEMENT

Sir:

In order to fulfill the requirements of candor and good faith set forth in 37 C.F.R.

§1.56, Applicants submit herewith the following Information Disclosure Statement in
 accordance with the provisions of 37 C.F.R. §1.97 and §1.98.

UNITED STATES PATENTS

<u>PATENTEE</u>	<u>PATENT NO.</u>	<u>ISSUE DATE</u>
Lorenz et al.	6,205,350	March 20, 2001
Drebin et al.	5,877,771	March 2, 1999
Clarke et al.	5,825,936	October 20, 1998
Eberhard et al.	5,712,926	January 27, 1998
Nishikawa et al.	5,666,434	September 9, 1997
Lumelsky et al.	5,351,067	September 27, 1994

Doi et al.	5,289,374	February 22, 1994
Wood	5,283,837	February 1, 1994
Tatar	5,228,443	July 20, 1993

FOREIGN PATENT DOCUMENTS

<u>COUNTRY</u>	<u>PUBLICATION NO.</u>	<u>PUBLICATION DATE</u>
WO	01-78005	October 18, 2001

NON-PATENT PUBLICATIONS

1. **Author:** A. Akanuma; **Title:** "Clinical method to estimate time of origin and maximum volume of malignant tumors"; *Radiation Medicine*, 1(1):89-104; **Date of Publication:** Jan.-Mar. 1983; **Place of Publication:** Japan.
2. **Author:** E. Arana, P. Delicado, and L. Marti-Bonmati.; **Title:** "Validation procedures in radiologic diagnostic models"; Neural network and logistic regression. *Investigative Radiology*, 34(10):636-642; **Date of Publication:** October 1999; **Place of Publication:** Spain.
3. **Author:** S. G. Armato, III, M. L. Giger, K. Ashizawa, and H. MacMahon; **Title:** "Automated lung segmentation in digital lateral chest radiographs"; *Medical Physics*, 25(8):1507-1520; **Date of Publication:** August 1998; **Place of Publication:** U.S.
4. **Author:** S. G. Armato, III, M. L. Giger, C. J. Moran, J. T. Blackburn, K. Doi, and H. MacMahon; **Title:** "Computerized detection of pulmonary nodules on CT scans"; *Radiographics*, 19(5):1303- 1311; **Date of Publication:** Sep.-Oct. 1999; **Place of Publication:** U.S.
5. **Author:** P. J. Besl and R. C. Jain; **Title:** "Invariant surface characteristics for 3D object recognition in range images"; *Computer Vision, Graphics, and Image Processing*, 33(1):33-80; **Date of Publication:** January 1986; **Place of Publication:** U.S.

6. **Author:** R. N. Bracewell and S. J. Wernecke; **Title:** "Image reconstruction over a finite field of view"; *Journal of the Optical Society of America*, 65:1342-1346; **Date of Publication:** 1975; **Place of Publication:** U.S.

7. **Author:** M. S. Brown, M. F. McNitt-Gray, N. J. Mankovich, J. G. Goldin, J. Hiller, L. S. Wilson, and D. R. Aberle; **Title:** "Method for segmenting chest CT image data using an anatomical model: Preliminary results"; *IEEE Transactions on Medical Imaging*, 16(6):828-839; **Date of Publication:** December 1997; **Place of Publication:** U.S.

8. **Author:** M. J. Carreira, D. Cabello, M. G. Penedo, and A. Mosquera; **Title:** "Computer-aided diagnoses: Automatic detection of lung nodules"; *Medical Physics*, 25(10):1998-2006; **Date of Publication:** October 1998; **Place of Publication:** Spain.

9. **Author:** G. Cittadini Jr., R. Conzi, and G. Motta; **Title:** "Spiral computed tomography in the diagnosis and staging of bronchopulmonary carcinoma"; *Chir Ital*, 47(3):13-17; **Date of Publication:** 1995; **Place of Publication:**

10. **Author:** J. Collins and E. J. Stern; **Title:** "Ground-glass opacity at CT: the ABCs"; *AJR American Journal of Roentgenology*, 169(2):355-367; **Date of Publication:** August 1997; **Place of Publication:** U.S.

11. **Author:** V. P. Collins, R. K. Loeffler, and H. Tivey; **Title:** "Observations on growth rates of human tumors"; *American Journal of Roentgenology*, 76:988-1000; **Date of Publication:** 1956; **Place of Publication:** U.S.

12. **Author:** ACR-NEMA Standards Committee. *Digital Imaging and Communications in Medicine (DICOM): Version 3.2*. Rosslyn, VA; **Date of Publication:** 1999; **Place of Publication:** U.S.

13. **Author:** A. M. Cormack.; **Title:** "Representation of a function by its line integrals with some radiological applications"; *Journal of Applied Physics*, 34:2722-2727; **Date of Publication:** 1963; **Place of Publication:** U.S.

14. **Author:** A. M. Cormack.; **Title:** "Representation of a function by its line integrals with some radiological applications II"; *Journal of Applied Physics*, 34:2908-2913; **Date of Publication:** 1964; **Place of Publication:** U.S.

15. **Author:** P. Croisille, M. Souto, M. Cova, S. Wood, Y. Afework, J. E. Kuhlman, and E. A. Zerhouni; **Title:** "Pulmonary nodules: Improved detection with vascular segmentation and extraction with spiral CT"; Work in progress. *Radiology*, 197(2):397-401; **Date of Publication:** November 1995; **Place of Publication:** U.S.

16. **Author:** S. Dholakia and D. C. Rappaport; **Title:** "The solitary pulmonary nodule. Is it malignant or benign?"; *Postgraduate Medicine*, 99(2):246-250; **Date of Publication:** February 1996; **Place of Publication:** U.S.

17. **Author:** C. E. Engeler, J. H. Tashjian, S. W. Trenkner, and J. W. Walsh; **Title:** "Ground-glass opacity of the lung parenchyma: a guide to analysis with high-resolution CT"; *AJR American Journal of Roentgenology*, 160(2):249-251; **Date of Publication:** February 1993; **Place of Publication:** U.S.

18. **Author:** B. J. Flehinger, M. Kimmel, T. Polyak, and M. R. Melamed; **Title:** "Screening for lung cancer"; The Mayo Lung Project revisited. *Cancer*, 72(5):1573-1580; **Date of Publication:** Sep. 1 1993; **Place of Publication:** U.S.

19. **Author:** R. S. Fontana, D. R. Sanderson, L. B. Woolner, W. F. Taylor, W. E. Miller, J. R. Muhm, P. E. Bernatz, W. S. Payne, P. C. Pairolero, and E. J. Bergstralh; **Title:** "Screening for lung cancer"; A critique of the Mayo Lung Project. *Cancer*, 67(4 (suppl.)):1155-1164; **Date of Publication:** Feb. 15 1991; **Place of Publication:** U.S.

20. **Author:** A. Van Gelder and J. Wilhelms; **Title:** "Topological considerations in isosurface generation"; *ACM Transactions on Graphics*, 13(4):337-375; **Date of Publication:** October 1994; **Place of Publication:** U.S.

21. **Author:** M. L. Giger, K. T. Bae, and H. MacMahon; **Title:** "Computerized detection of pulmonary nodules in computed tomography images"; *Investigative Radiology*, 29(4):459-465; **Date of Publication:** April 1994; **Place of Publication:** U.S.

22. **Author:** M. L. Giger, K. Doi, and H. MacMahon; **Title:** "Image feature analysis and computer-aided diagnosis in digital radiography. 3. Automated detection of nodules in peripheral lung fields"; *Medical Physics*, 15(2):158-166; **Date of Publication:** Mar.-Apr. 1988; **Place of Publication:** U.S.

23. **Author:** R. C. Gonzales and R. E. Woods; *Digital Image Processing*. Addison-Wesley, Reading, MA; **Date of Publication:** 1992; **Place of Publication:** U.S.

24. **Author:** J. W. Green and C. C. Lushbaugh; **Title:** "Histopathological study of the mode of inhibition of cellular proliferation by urethane"; *Cancer Research*, 9:199-209; **Date of Publication:** 1949; **Place of Publication:** U.S.

25. **Author:** Gurney, Jud W.; **Title:** "Determining the likelihood of malignancy in solitary pulmonary nodules with Bayesian analysis"; **Part 1. Theory.** *Radiology*, 186(2):405-413; **Date of Publication:** February 1993; **Place of Publication:** U.S.

26. **Author:** J. A. Hanley and B. J. McNeil; **Title:** "The meaning and use of the area under a receiver operating characteristic (ROC) curve"; *Radiology*, 143(1):29-36; **Date of Publication:** April 1982; **Place of Publication:** Canada.

27. **Author:** C.I. Henschke, D.I. McCauley, D.F. Yankelevitz, D. P. Naidich, G. McGuinness, O. S. Miettinen, D. M. Libby, M. W. Pasmantier, J. Koizumi, N. K. Altorki, and J. P. Smith; **Title:** "Early Lung Cancer Action Project: overall design and findings from baseline screening;" *Lancet*, 354(9173):99-105; **Date of Publication:** July 1999; **Place of Publication:** U.S.

28. **Author:** C. J. Herold, A. A. Bankier, and D. Fleischmann; **Title:** "Lung metastases"; *European Radiology*, 6(5):596-606; **Date of Publication:** 1996; **Place of Publication:** Austria.

29. **Author:** G. N. Hounsfield; **Title:** "Computerized transverse axial scanning (tomography). I. Description of system"; *British Journal of Radiology*, 46(552):1016-1022; **Date of Publication:** December 1973; **Place of Publication:** England.

30. **Author:** G. N. Hounsfield; **Title:** "Computed medical imaging"; Nobel lecture, December 8, 1979. *Journal of Computer Assisted Tomography*, 4(5):665-674; **Date of Publication:** October 1980; **Place of Publication:** England.

31. **Author:** Z. Huo, M. L. Giger, C. J. Vyborny, U. Bick, P. Lu, D. E. Wolverton, and R. A. Schmidt; **Title:** "Analysis of spiculation in the computerized classification of mammographic masses"; *Medical Physics*, 22(10):1569-1579; **Date of Publication:** October 1995; **Place of Publication:** U.S.

32. **Author:** Z. Huo, M. L. Giger, C. J. Vyborny, D. E. Wolverton, R. A. Schmidt, and K. Doi; **Title:** "Automated computerized classification of malignant and benign masses on digitized mammograms"; *Academic Radiology*, 5(3):155-168; **Date of Publication:** March 1998; **Place of Publication:** U.S.

33. **Author:** S. Itoh, M. Ikeda, T. Isomura, T. Endo, K. Yamakawa, K. Itoh, S. Naganawa, K. Maruyama, and T. Ishigaki; **Title:** "Screening helical CT for mass screening of lung cancer: application of low-dose and single-breath-hold scanning"; *Radiation Medicine*, 16(2):75-83; **Date of Publication:** Mar.-Apr. 1998; **Place of Publication:** Japan.

34. **Author:** R. Jain, R. Kasturi, and B. G. Schunck. *Machine Vision*. McGraw-Hill, New York; **Date of Publication:** 1995; **Place of Publication:** U.S.

35. **Author:** L. R. Kaiser and J. B. Shrager; **Title:** "Video-assisted thoracic surgery: the current state of the art"; *AJR American Journal of Roentgenology*, 99(2):246-250; **Date of Publication:** February 1996; **Place of Publication:** U.S.

36. **Author:** W. A. Kalender; **Title:** "Technical foundations of spiral CT"; *Seminars in Ultrasound, CT, and MRI*, 15(2):81-89; **Date of Publication:** April 1994; **Place of Publication:** Germany.

37. **Author:** W. A. Kalender; "Thin-section three-dimensional spiral CT: is isotropic imaging possible?"; *Radiology*, 197(3):578-580; **Date of Publication:** December 1995; **Place of Publication:** Germany.

38. **Author:** W. A. Kalender, W. A. Seissle, E. Klotz, and P. Vock; **Title:** "Spiral volumetric CT with single breath-hold technique continuous transport and continuous scanner rotation"; *Radiology*, 176(1):181-183; **Date of Publication:** July 1990; **Place of Publication:** Switzerland.
39. **Author:** M. Kaneko, K. Eguchi, H. Ohmatsu, R. Kakinuma, T. Naruke, K. Suemasu, and N. Moriyama; **Title:** "Peripheral lung cancer: screening and detection with low-dose spiral CT versus radiography"; *Radiology*, 201(3):798-802; **Date of Publication:** December 1996; **Place of Publication:** Japan.
40. **Author:** Y. Kawata, N. Niki, H. Ohmatsu, K. Eguchi, and N. Moriyama; **Title:** "Shape analysis of pulmonary nodules based on thin section CT images"; *SPIE Proceedings*, 3034:964-974; **Date of Publication:** February 1997; **Place of Publication:** Japan.
41. **Author:** J. H. Kim, J. G. Im, M. C. Han, B. G. Min, and C. W. Lee; **Title:** "Improved visualization of simulated nodules by adaptive enhancement of digital chest radiography"; *Academic Radiology*, 1(2):93-99; **Date of Publication:** October 1994; **Place of Publication:** South Korea.
42. **Author:** T. Kobayashi, X.-W. Xu, H. MacMahon, C. E. Metz, and K. Doi; **Title:** "Effect of a computer-aided diagnosis scheme on radiologists' performance in detection of lung nodules on radiographs"; *Radiology*, 199(3):843-848; **Date of Publication:** June 1996; **Place of Publication:** U.S.
43. **Author:** A. K. Laird; **Title:** "Dynamics of tumor growth: Comparison of growth rates and extrapolation of growth curve to one cell"; *British Journal of Cancer*, 19:278-291; **Date of Publication:** 1965; **Place of Publication:** U.S.
44. **Author:** S. H. Landis, T. Murray, S. Bolden, and P. A. Wingo; **Title:** "Cancer statistics, 1999"; *CA: A Cancer Journal for Clinicians*, 49(1):8-31; **Date of Publication:** Jan.-Feb. 1999; **Place of Publication:** U.S.

45. **Author:** G. A. Lillington; **Title:** "Management of solitary pulmonary nodules"; *Postgraduate Medicine*, 101(3):145-150; **Date of Publication:** March 1997; **Place of Publication:** U.S.

46. **Author:** W. E. Lorensen and H. E. Cline; **Title:** "Marching cubes: A high resolution 3D surface construction algorithm"; *Computer Graphics*, 21(4):163-169; **Date of Publication:** July 1987; **Place of Publication:** U.S.

47. **Author:** F. Mao, W. Qian, J. Gaviria, and L. P. Clarke; **Title:** "Fragmentary window filtering for multiscale lung nodule detection: Preliminary study"; *Academic Radiology*, 5(4):306-311; **Date of Publication:** April 1998; **Place of Publication:** U.S.

48. **Author:** T. Matsumoto, H. Yoshimura, K. Doi, M. L. Giger, A. Kano, H. MacMahon, K. Abe, and S. M. Montner; **Title:** "Image feature analysis of false-positive diagnoses produced by automated detection of lung nodules"; *Investigative Radiology*, 27(8):587-597; **Date of Publication:** August 1992; **Place of Publication:** U.S.

49. **Author:** M. F. McNitt-Gray, E. M. Hart, N. Wyckoff, J. W. Sayre, J. G. Goldin, and D. R. Aberle; **Title:** "A pattern classification approach to characterizing solitary pulmonary nodules imaged on high resolution CT: Preliminary results"; *Medical Physics*, 26(6):880-888; **Date of Publication:** June 1999; **Place of Publication:** U.S.

50. **Author:** M.R. Melamed, B. J. Flehinger, M. B. Zaman, R. T. Heelan, W. A. Perchick, and N. Martini; **Title:** "Screening for early lung cancer. Results of the Memorial Sloan-Kettering study in New York"; *Chest*, 86(1):44-53; **Date of Publication:** July 1984; **Place of Publication:** U.S.

51. **Author:** S. Mitruka, R. J. Landreneau, M. J. Mack, L. S. Fetterman, J. Gammie, S. Bartley, S. R. Sutherland, C. M. Bowers, R. J. Keenan RJ, P. F. Ferson, and R. J. Weyant; **Title:** "Diagnosing the indeterminate pulmonary nodule: percutaneous biopsy versus thoracoscopy"; *Surgery*, 118(4):676-684; **Date of Publication:** October 1995; **Place of Publication:** U.S.

52. **Author:** O. Monga, R. Deriche, and J.-M. Rocchisani; **Title:** "3D edge detection using recursive filtering: Application to scanner images"; *Computer Vision, Graphics, and Image Processing: Image Understanding*, 53(1):76-87; **Date of Publication:** January 1991; **Place of Publication:** France.
53. **Author:** H. Nathan; **Title:** "Management of solitary pulmonary nodules. An organized approach based on growth rate and statistics"; *JAMA*, 227(10):1141-1144; **Date of Publication:** March 1974; **Place of Publication:** U.S.
54. **Author:** M. H. Nathan, V. P. Collins, and R. A. Adams; **Title:** "Differentiation of benign and malignant pulmonary nodules by growth rate"; *Radiology*, 79:221-231; **Date of Publication:** 1962; **Place of Publication:** U.S.
55. **Author:** R. Pearl and L. J. Reed; **Title:** "On the rate of growth of the population of the United States since 1790 and its mathematical presentation"; *Proceedings of the National Academy of Sciences*, 6:275-285; **Date of Publication:** 1920; **Place of Publication:** U.S.
56. **Author:** J. Peiss, M. Verlande, W. Ameling, and R. W. Guenther; **Title:** "Classification of lung tumors on chest radiographs by fractal texture analysis"; *Investigative Radiology*, 31(10):625-629; **Date of Publication:** October 1996; **Place of Publication:** Germany.
57. **Author:** M. G. Penedo, M. J. Carreira, A. Mosquera, and D. Cabello; **Title:** "Computer-aided diagnosis: A neural-network-based approach to lung nodule detection"; *IEEE Transactions on Medical Imaging*, 17(6):872-880; **Date of Publication:** December 1998; **Place of Publication:** Spain.
58. **Author:** R. J. Prokop and A. P. Reeves; **Title:** "A survey of moment-based techniques for unoccluded object representation and recognition"; *CVGIP: Graphical Models and Image Processing*, 54(5):438-360; **Date of Publication:** September 1992; **Place of Publication:** U.S.
59. **Author:** R. D. Pugatch; **Title:** "Radiologic evaluation in chest malignancies. A review of imaging modalities"; *Chest*, 107(6 (suppl.)):294S-297S; **Date Publication:** June 1995; **Place of Publication:** U.S.

60. **Author:** A. P. Reeves, W. J. Kostis, C. I. Henschke, B. Zhao, and D. F. Yankelevitz; **Title:** "Three-dimensional feature characterization of small pulmonary nodules from helical CT images"; *Radiology*, 209P:163; **Date of Publication:** November 1998; **Place of Publication:** U.S.
61. **Author:** A. P. Reeves, W. J. Kostis, D. F. Yankelevitz, and C. I. Henschke; **Title:** "Three-dimensional shape characterization of solitary pulmonary nodules from helical CT scans"; In H. U. Lemke, M. W. Vannier, K. Inamura, and A. G. Farman, editors, *Proceedings of Computer Assisted Radiology and Surgery (CARS '99)*, pages 83-87. Elsevier Science; **Date of Publication:** June 1999; **Place of Publication:** U.S.
62. **Author:** A. P. Reeves, R. J. Prokop, S. E. Andrews, and F. P. Kuhl; **Title:** "Three-dimensional shape analysis using moments and Fourier descriptors"; *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 10(6):937-943; **Date of Publication:** November 1988; **Place of Publication:** U.S.
63. **Author:** A. P. Reeves and B. S. Wittner; **Title:** "Shape analysis of three dimensional objects using the method of moments"; In *Proceedings of 1983 IEEE Conference on Computer Vision and Pattern Recognition*, pages 20-26; **Date of Publication:** June 1983; **Place of Publication:** U.S.
64. **Author:** J. Remy, M. Remy-Jardin, F. Giraud, and J. Wannebroucq; **Title:** "Spiral volumetric scanning and its applications in thoracic pathology"; *Rev Mal Respir*, 11(1):13-27; **Date of Publication:** 1994; **Place of Publication:**
65. **Author:** T. W. Ridler and S. Calvard; **Title:** "Picture thresholding using an iterative selection method"; *IEEE Transactions on Systems, Man, and Cybernetics*, SMC-8(8):630-632; **Date of Publication:** August 1978; **Place of Publication:** London.
66. **Author:** K. V. Rolston, S. Rodriguez, M. Dholakia, E. Whimbey E, and I. Raad; **Title:** "Pulmonary infections mimicking cancer: a retrospective; three-year review"; *Support Care Cancer*, 5(2):90-93; **Date of Publication:** March 1997; **Place of Publication:** U.S.

67. **Author:** S. Sanada, K. Doi, and H. MacMahon; **Title:** "Image feature analysis and computer-aided diagnosis in digital radiography: automated delineation of posterior ribs in chest images"; *Medical Physics*, 18(5):964-971; **Date of Publication:** Sep.-Oct. 1991; **Place of Publication:** U.S.
68. **Author:** S. Sasaoka, H. Takabatake, M. Mori, H. Natori, and S. Abe; **Title:** "Digital analysis of pulmonary nodules-potential usefulness of computer-aided diagnosis for differentiation of benign from malignant nodules"; *Nippon Kyobu Shikkan Gakkai Zasshi*, 33(5):489-496; (With English Abstract) **Date of Publication:** May 1995; **Place of Publication:**
69. **Author:** M. D. Seemann, A. Staebler, T. Beinert, H. Dienemann, B. Obst, M. Matzko, C. Pistitsch, and M. F. Reiser; **Title:** "Usefulness of morphological characteristics for the differentiation of benign from malignant solitary pulmonary lesions using HRCT;" *European Radiology*, 9(3):409-417; **Date of Publication:** 1999; **Place of Publication:** Germany.
70. **Author:** R. Shah, S. Sabanathan, J. Richardson, A. J. Mcarns, and C. Goulden; **Title:** "Results of surgical treatment of stage I and II lung cancer"; *Journal of Cardiovascular Surgery*, 37(2):169-172; **Date of Publication:** April 1996; **Place of Publication:** United Kingdom.
71. **Author:** R. H. Sherrier, C. Chiles, W. E. Wilkinson, G. A. Johnson, and C. E. Ravin; **Title:** "Effects of image processing on nodule detection rates in digitized chest radiographs: ROC study of observer performance"; *Radiology*, 166(2):447-450; **Date of Publication:** February 1998; **Place of Publication:** U.S.
72. **Author:** S. Sone, S. Takashima, F. Li, Z. Yang, T. Honda, Y. Maruyama, M. Hasegawa, T. Yamada, K. Kubo, K. Hanamura, and K. Asakura; **Title:** "Mass screening for lung cancer with mobile spiral computed tomography scanner"; *Lancet*, 351(9111):1242-1245; **Date of Publication:** April 1998; **Place of Publication:** Japan.
73. **Author:** M. Sonka, G. Sundararmoorthy, and E. A. Hoffman; **Title:** "Knowledge-based segmentation of intrathoracic airways from multidimensional high resolution CT images"; *SPIE*, 2168:73-85; **Date of Publication:** August 1994; **Place of Publication:** U.S.

74. **Author:** J. S. Spratt, J. S. Meyer, and J. A. Spratt; **Title:** "Rates of growth of human solid neoplasms: Part I"; *Journal of Surgical Oncology*, 60(2):137-146; **Date of Publication:** October 1995; **Place of Publication:** U.S.

75. **Author:** S. J. Swensen, J. R. Jett, W. S. Payne, R. W. Viggiano, P. C. Pairolero, and V. F. Trastek; **Title:** "An integrated approach to evaluation of the solitary pulmonary nodule"; *Mayo Clinic Proceedings*, 65(2):173-186; **Date of Publication:** February 1990; **Place of Publication:** U.S.

76. **Author:** S. J. Swensen, M. D. Silverstein, D. M. Ilstrup, C. D. Schleck, and E. S. Edell; **Title:** "The probability of malignancy in solitary pulmonary nodules. Application to small radiologically indeterminate nodules"; *Archives of Internal Medicine*, 157(8):849-855; **Date of Publication:** April 1997; **Place of Publication:** U.S.

77. **Author:** S. Toshioka, K. Kanazawa, N. Niki, H. Satoh, H. Ohmatsu, K. Eguchi, and N. Moriyama; **Title:** "Computer aided diagnosis system for lung cancer based on helical CT images"; *SPIE Proceedings*, 3034:975-984; **Date of Publication:** February 1997; **Place of Publication:** Japan.

78. **Author:** J. D. Urschel; **Title:** "Surgical treatment of peripheral small cell lung cancer"; *Chest Surg Clin N Am*, 7(1):95-103; **Date of Publication:** February 1997; **Place of Publication:** U.S.

79. **Author:** K. Usuda, Y. Saito, M. Sagawa, M. Sato, K. Kanma, S. Takahashi, C. Endo, Y. Chen, A. Sakurada, and S. Fujimura; **Title:** "Tumor doubling time and prognostic assessment of patients with primary lung cancer"; *Cancer*, 74(8):2239-2244; **Date of Publication:** October 1994; **Place of Publication:** Japan.

80. **Author:** N. F. Vittitoe, J. A. Baker, and C. E. Floyd; **Title:** "Fractal texture analysis in computer-aided diagnosis of solitary pulmonary nodules"; *Academic Radiology*, 4(2):96-101; **Date of Publication:** February 1997; **Place of Publication:** U.S.

81. **Author:** P. Vock, M. Soucek, M. Daepp, and W. A. Kalender; **Title:** "Lung: spiral volumetric CT with single-breath-hold technique"; *Radiology*, 176(3):864-867; **Date of Publication:** September 1990; **Place of Publication:** Switzerland.
82. **Author:** W. Weiss; **Title:** "Implications of tumor growth rate for the natural history of lung cancer"; *Journal of Occupational Medicine*, 26(5):345-352; **Date of Publication:** May 1984; **Place of Publication:** U.S.
83. **Author:** S. A. Wood, E. A. Zerhouni, J. D. HOFord, E. A. Hoffman, and W. Mitzner; **Title:** "Measurement of three-dimensional lung tree structures by using computed tomography"; *Journal of Applied Physiology*, 79(5):1687-97; **Date of Publication:** November 1995; **Place of Publication:** U.S.
84. **Author:** X.-W. Xu and K. Doi; **Title:** "Image feature analysis for computer-aided diagnosis: Accurate determination of ribcage boundary in chest radiographs"; *Medical Physics*, 22(5):617-626; **Date of Publication:** May 1995; **Place of Publication:** U.S.
85. **Author:** X.-W. Xu and K. Doi; **Title:** Image feature analysis for computer-aided diagnosis: Detection of right and left hemidiaphragm edges and delineation of lung field in chest radiographs"; *Medical Physics*, 23(9):1613-1624; **Date of Publication:** September 1996; **Place of Publication:** U.S.
86. **Author:** X.-W. Xu, K. Doi, T. Kobayashi, H. MacMahon, and M. L. Giger; **Title:** "Development of an improved CAD scheme for automated detection of lung nodules in digital chest images"; *Medical Physics*, 24(9):1395-1403; **Date of Publication:** September 1997; **Place of Publication:** U.S.
87. **Author:** S. Yamamoto, I. Tanaka, M. Senda, Y. Tateno, T. Iinuma, T. Matsumoto, and M. Matsumoto; **Title:** "Image processing for computer-aided diagnosis of lung cancer by CT (LSCT)"; *Systems and Computers in Japan*, 25(2):67-80; **Date of Publication:** February 1994; **Place of Publication:** Japan.
88. **Author:** D. F. Yankelevitz, C. I. Henschke, J. H. Koizumi, N. K. Altorki, and D. Libby; **Title:** "CT-guided transthoracic needle biopsy of small solitary pulmonary nodules";

Clinical Imaging, 21(2):107-10; **Date of Publication:** Mar.-Apr. 1997; **Place of Publication:** U.S.

89. **Author:** H. Yoshimura, M. L. Giger, K. Doi, H. MacMahon, and S. M. Montner; **Title:** "Computerized scheme for the detection of pulmonary nodules: A nonlinear filtering technique"; *Investigative Radiology*, 27(2):124-129; **Date of Publication:** February 1992; **Place of Publication:** U.S.

90. **Author:** P. Chandrasekhar, L. Wolff, E. Zerhouni, and W. Mitzner; **Title:** "Segmentation of 3 pulmonary trees using mathematical morphology"; In P. Maragos, R. W. Schafer, and M. A. Butt, editors, *Mathematical Morphology and its Applications to Image and Signal Processing*, pages 409-416. Kluwer Academic Press; **Date of Publication:** May 1996; **Place of Publication:**

91. **Author:** T. Fleiter, E.M. Merkle, A.J. Aschoff, G. Lang, M. Stein, J. Gorich, F. Liewald, N. Rilinger, and R. Sokiranski; **Title:** "Comparison of real-time virtual and fiberoptic bronchoscopy in patients with bronchial carcinoma: opportunities and limitations"; *American Journal of Roentgenology*, 169(2):1591-1595; **Date of Publication:** December 1997; **Place of Publication:** Germany.

92. **Author:** M. L. Giger, K.T. Bae, and H. MacMahon; **Title:** "Image processing and computer-aided diagnosis"; *Radiologic Clinics of North America*, 34(3):565-596; **Date of Publication:** May 1996; **Place of Publication:** U.S.

93. **Author:** P. A. Heng, P. F. Fung, T. T. Wong, Y. H. Siu, and H. Sun; **Title:** "Interactive navigation and bronchial tube tracking in virtual bronchoscopy"; *Studies in Health Technology and Informatics*, 62:130-133; **Date of Publication:** 1999; **Place of Publication:** Hong Kong.

94. **Author:** W. J. Kostis, A. P. Reeves, D. F. Yankelwitz, and C. I. Henschke; **Title:** "Three-dimensional segmentation of solitary pulmonary nodules from helical CT scans"; In H. U. Lemke, M. W. Vannier, K. Inamura, and A. G. Farman, editors, *Proceedings of Computer Assisted Radiology and Surgery (CARS '99)*, pages 203-207. Elsevier Science; **Date of Publication:** June 1999; **Place of Publication:** U.S.

95. **Author:** F. Maes, A. Collingnon, D. Vandermeulen, G. Marchal, and P. Suetens. **Title:** "Multimodality image registration by maximization of mutual information"; *IEEE Transactions on Medical Imaging*, 16(2):187-198; **Date of Publication:** April 1997; **Place of Publication:** Belgium.
96. **Author:** W. Park, E. A. Hoffman, and M. Sonka; **Title:** "Segmentation of intrathoracic airway trees: A fuzzy logic approach"; *IEEE Transactions on Medical Imaging*, 17(4):489-497; **Date of Publication:** August 1998; **Place of Publication:** U.S.
97. **Author:** A. P. Reeves and W. J. Kostis; **Title:** "Computer-aided diagnosis for lung cancer"; *Radiologic Clinics of North America*, 38(3):497-509; **Date of Publication:** May 2000; **Place of Publication:** U.S.
98. **Author:** R. M. Summers, D. H. Feng, S. M. Holland, M. C. Sneller, and J. H. Shelhamer; **Title:** "Virtual bronchoscopy: Segmentation method for real-time display"; *Radiology*, 200(3):857-862; **Date of Publication:** September 1996; **Place of Publication:** U.S.
99. **Author:** J. K. Udupa; **Title:** "Three-dimensional visualization and analysis methodologies: a current perspective"; *Radiographics*, 19(3):783-806; **Date of Publication:** May-Jun. 1999; **Place of Publication:** U.S.
100. **Author:** W. M. Wells, III, P. Viola, H. Atsumi, S. Nakajima, and R. Kikinis; **Title:** "Multi-modal volume registration by maximization of mutual information"; *Medical Image Analysis*, 1(1):35-51; **Date of Publication:** March 1996; **Place of Publication:** U.S.
101. **Author:** D. F. Yankelevitz, R. Gupta, B. Zhao, and C. I. Henschke; **Title:** "Small pulmonary nodules: Evaluation with repeat CT-preliminary experience"; *Radiology*, 212(2):561-566; **Date of Publication:** August 1999; **Place of Publication:** U.S.
102. **Author:** D. F. Yankelevitz, A. P. Reeves, W. J. Kostis, B. Zhao, and C. I. Henschke; **Title:** "Determination of malignancy in small pulmonary nodules based on volumetrically

determined growth rates”; *Radiology*, 209P:375; **Date of Publication:** November 1998;

Place of Publication:

103. **Author:** D. F. Yankelevitz, A. P. Reeves, W. J. Kostis, B. Zhao, and C. I. Henschke; **Title:** “Small Pulmonary Nodules: Volumetrically Determined Growth Rates Based on CT Evaluation”; *Radiology*, 217(1):251-256; **Date of Publication:** October 2000; **Place of Publication:** U.S.

104. **Author:** A. P. Reeves and W. J. Kostis; **Title:** “Computer-Aided Diagnosis of Small Pulmonary Nodules”; *Seminars in Ultrasound, CT, and MRI*, 21(2):116-128; **Date of Publication:** April 2000; **Place of Publication:** U.S.

105. **Author:** B. Zhao, W. J. Kostis, A. P. Reeves, D. F. Yankelevitz, and C. I. Henschke; **Title:** “Consistent Segmentation of Repeat CT Scans for Growth Assessment in Pulmonary Nodules”; *Proceedings of the SPIE, Medical Imaging 1999*, 3661:1012-1018; **Date of Publication:** May 1999; **Place of Publication:** U.S.

106. **Author:** S. Hu, E. A. Hoffman, and J.M. Reinhardt; **Title:** “Automatic Lung Segmentation for Accurate Quantitation of Volumetric X-Ray CT Images”; *IEEE Transactions on Medical Imaging*, Vol. 20, No.6; **Date of Publication:** June 2001; **Place of Publication:**

107. **Author:** J. Hsieh; **Title:** “Generalized Adaptive Median Filters and their Application in Computed Tomography”; *SPIE*, Vol. 2298, pp. 662-669; **Date of Publication:** 1994; **Place of Publication:** U.S.

108. **Author:** J. Hsieh; **Title:** “Adaptive Truncated Mean Filter for CT Imaging”; *Mathematical Methods in Medical Imaging III, Proceedings of SPIE*, Vol. 2299, pp.316-24; **Date of Publication:** 1994; **Place of Publication:** U.S.

109. **Author:** H. Soltanian-Zadeh, J.P. Windham and J. Soltanianzadeh; **Title:** “CT Artifact Correction: An Image Processing Approach”; *Medical Imaging 1996: Image Processing, Proceedings of SPIE*, Vol. 2710, pp. 477-485; **Date of Publication:** 1996; **Place of Publication:** U.S.

110. **Author:** A. P. Reeves, W. J. Kostis, D. F. Yankelevitz, C.I. Henschke; **Title:** "Analysis of Small Pulmonary Nodules without Explicit Segmentation of CT images"; *Radiological Society of North America - 2000 Scientific Program*, Vol. 217, pgs. 243-244; **Date of Publication:** November 2000; **Place of Publication:**
111. **Author:** Y. Lee, T., Hara, H. Fujita, S. Itoh, and T. Ishigaki; **Title:** "Automatic Detection of Pulmonary Nodules in Helical CT Images Based on an Improved Template-Matching Technique"; *IEEE Transactions on Medical Imaging*, Vol. 20, No. 7, pgs. 595-604; **Date of Publication:** July 2001; **Place of Publication:**
112. **Author:** F. Maes, A. Collignon, D. Vandermeulen, G. Marchal and P. Suetens; **Title:** "Multimodality image registration by maximization of mutual information"; *IEEE Transactions on Medical Imaging*, Vol. 16, No. 2, pgs. 187-198; **Date of Publication:** April 1997; **Place of Publication:**
113. **Author:** Takagi, N.; Kawata, Y., Nikvi, N.; Morit, K.; Ohmatsu, H.; Kakinuma, R.; Eguchi, K.; Kusumoto, M.; Kaneko, M.; Moriyama, N.; **Title:** "Computerized characterization of contrast enhancement patterns for classifying pulmonary nodules"; *Image Processing, 2000. Proceedings. 2000 International Conference on* Vol. 1, pp. 188-191; **Date of Publication:** 2000; **Place of Publication:**
114. **Author:** A. P. Reeves, W. J. Kostis; **Title:** "Computer-Aided Diagnosis of Small Pulmonary Nodules"; *Seminars in Ultrasound, CT, and MRI*, Vol. 21, No. 2, pgs. 116-128; **Date of Publication:** April 2000; **Place of Publication:**
115. **Author:** W. J. Kostis, A. P. Reeves, D. F. Yankelevitz, C.I. Henschke; **Title:** "Three-dimensional segmentation of solitary pulmonary nodules from helical CT scans"; *CARS '99 Computer Assisted Radiology and Surgery: Proceedings of the 13th International Congress and Exhibition*, pgs. 203-7; **Date of Publication:** 1999; **Place of Publication:**
116. **Author:** Li Fan, Carol L. Novak, Jiangzhong Qian, Gerhard Kohl, and David P. Naidich; **Title:** "Automatic Detection of Lung Nodules from Multi-Slice Low Dose CT

Images"; Proc SPIE 2001; 4322:1828-1835; **Date of Publication:** 2001; **Place of Publication:** U.S.

117. **Author:** Binsheng Zhao, Anthony Reeves, David Yankelevitz, and Claudia Henschke; **Title:** "Three-Dimensional multi-criterion automatic segmentation of pulmonary nodules of helical CT images"; Optical Engineering, 38(8):1340-1347; **Date of Publication:** 1999; **Place of Publication:**

118. **Author:** American Cancer Society; **Title:** "Cancer Facts & Figures 2002"; 1999 Clifton Road, NE, Atlanta, GA, 30329-4251.

119. **Author:** Claudia I. Henschke, D.P. Naidich, D.F. Yankelevitz, G. McGuinness, D.I. McCauley, J.P. Smith, D.M. Libby, M.W. Pasmantier, M. Vazquez, J. Koizumi, D. Flieder, N.K. Altorki, and O.S. Miettinen; **Title:** "Early Lung Cancer Action Project: Initial Findings on Repeat Screening"; Cancer July 1, 2001; 92(1):153-159; **Date of Publication:** July 1, 2001; **Place of Publication:**

120. **Author:** S.G. Armato III, M.L. Giger, J.T. Blackburn, K. Doi, H. MacMahon; **Title:** "Three-dimensional approach to lung nodule detection in helical CT"; *SPIE*, vol. 3661, pp. 553-559; **Date of Publication:** 1999; **Place of Publication:** U.S.

121. **Author:** S.L. Lou, C.L. Chang, K.P. Lin and T. Chen; **Title:** "Object based deformation technique for 3-D CT lung nodule detection"; *SPIE*, vol. 3661, pp 1544-1552; **Date of Publication:** 1999; **Place of Publication:** U.S.

122. **Author:** T. Okumura, T. Miwa, Jun-ichi Kako, S. Yamamoto, M. Matsumoto, Y. Tateno, T. Linua and T. Matsumoto; **Title:** "Image processing for computer-aided diagnosis of lung cancer screening system by CT (LSCT)"; *SPIE*, vol. 3338, pp. 1314-1322; **Date of Publication:** 1998; **Place of Publication:** U.S.

123. **Author:** M. Fiebich, C. Wietholt, B.C. Render, S.G. Armato, K.R. Hoffmann, D. Wormanns and S. Diederich; **Title:** "Automatic detection of pulmonary nodules in low-dose screening thoracic CT examinations"; *SPIE*, vol. 3661, pp. 1434-1439; **Date of Publication:** 1999; **Place of Publication:** U.S.

124. **Author:** H. Taguchi, Y. Kawata and N. Niki, H. Satoh, H. Ohmatsu, K. Eguchi, M. Kaneko and N. Moriyama; **Title:** "Lung cancer detection based on helical CT images using curved surface morphology analysis"; *SPIE*, vol. 3661, pp. 1307-1313; **Date of Publication:** 1999; **Place of Publication:** U.S.
125. **Author:** S-C B. Lo, S-L A. Lou, J-S Lin, M.T. Freedman, M.V. Chien and S.K. Mun; **Title:** "Artificial convolution neural Network techniques and applications for lung nodule detection"; *IEEE transactions on medical imaging*, vol. 14, no.4, pp 711-718; **Date of Publication:** 1995; **Place of Publication:**
126. **Author:** W.J. Kostis; **Title:** "Three-dimensional computed tomographic image analysis for early cancer diagnosis in small pulmonary nodules"; Ph.D. dissertation, Cornell University; **Date of Publication:** 2001; **Place of Publication:** U.S.
127. **Author:** R. Kakinuma, H. Ohmatsu, M. Kaneko, K. Eguchi, K. Naruke, K. Nagai; **Title:** "Detection failures in spiral CT screening for lung cancer: analysis of CT findings"; *Radiology*, 212, pp.61-66; **Date of Publication:** 1999; **Place of Publication:**
128. **Author:** F. Li, S. Sone, H. Abe, H.M. MacMahon, S.G. Armato, K. Doi; **Title:** "Missed Lung Cancers in low-dose Helical CT Screening Obtained from a General Population"; scientific paper presentation, RSNA 87th scientific assembly and annual meeting, Nov. 25-30, 2001.
129. **Author:** M. Remy Jardin, F. Giraud, C-H Marquette; **Title:** "Pulmonary nodules: detection with thick section spiral CT versus conventional CT"; *Radiology*, 187(No.2), pp. 513-520; **Date of Publication:** 1993; **Place of Publication:**
130. **Author:** J.A. Buckley, W.W. Scott, S.S. Siegelman, et al.; **Title:** "Pulmonary nodules: effect of increased data sampling on detection with spiral CT and confidence in diagnosis"; *Radiology*, 196, pp. 395-400; **Date of Publication:** 1995; **Place of Publication:**
131. **Author:** Y. Kawata, N. Niki, H. Ohmatsu, M. Kusumoto, R. Kakinuma, K. Mori, N. Nishiyama, K. Eguchi, M. Kaneko, and N. Moriyama; **Title:** "Tracking interval changes of

pulmonary nodules using a sequence of three-dimensional thoracic images"; *In Medical Imaging 2000: Image Processing, Proceedings of SPIE*, volume 3979, pages 86-96; **Date of Publication:** 2000; **Place of Publication:** U.S.

132. **Author:** Y. Kawata, N. Niki, H. Ohmatsu, M. Kusumoto, R. Kakinuma, K. Mori, N. Nishiyama, K. Eguchi, M. Kaneko, and N. Moriyama; **Title:** "Analysis of evolving processes in pulmonary nodules using a sequence of three-dimensional thoracic images"; In M. Sonka and K.M. Hanson, editors, *Medical Imaging 2001: Image Processing, Proceedings of SPIE*, volume 4322, pages 1890-1901; **Date of Publication:** 2001; **Place of Publication:** U.S.

133. **Author:** Z.-H. Cho, J. P. Jones, and M. Singh. *Foundations of Medical Imaging*. John Wiley and Sons Inc.; **Title:** "X-Ray Computerized Tomography", pp. 148-164; **Date of Publication:** 1993; **Place of Publication:** U.S.

134. **Author:** A. K. Jain; **Title:** "Fundamentals of Digital Image Processing", Prentice Hall, Englewood Cliffs, NJ; pp. 384-389; **Date of Publication:** 1989; **Place of Publication:** U.S.

135. **Author:** S. N. Reske, R. Bares, U. Bull, A. Guhlmann, E. Moser, and M. F. Wannenmacher; **Title:** "[Clinical value of positron emission tomography (PET) in oncologic questions: results of an interdisciplinary consensus conference. Schirmerreschaft der Deutschen Gesellschaft for Nuklearmedizin.]" (Summary in English is provided on page 42); *Nuklearmedizin*, 35(2):42-52; **Date of Publication:** April 1996; **Place of Publication:** Germany.

136. **Author:** M. D. Seemann, T. Beinert, F. Spelsberg, B. Obst, H. Dienemann, U. Fink, P. Kohz, and M. Reiser; **Title:** "Differentiation of solitary pulmonary coin lesions by high-resolution computerized tomography" (Summary in English provided on page 580); *Radiology*, 36(7):579-585; **Date of Publication:** July 1996; **Place of Publication:** Germany.

137. **Author:** J. Serra; *Image analysis and mathematical morphology*; pp. 34-92; Academic Press, London; **Date of Publication:** 1982; **Place of Publication:** London.

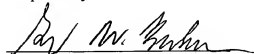
138. **Author:** J. Serra; **Title:** "Introduction to Morphological Filters"; *Image analysis and mathematical morphology; Volume 2: Theoretical advances*, pp. 101-114; Academic Press, London; **Date of Publication:** 1988; **Place of Publication:** London.
139. **Author:** S. W. Tamarkim; **Title:** "Spiral computed tomography and computed tomographic angiography"; In J. R. Haaga, C. F. Lanzieri, D. J. Sartoris, and E. A. Zehrouni, editors, *Computed tomography and magnetic resonance imaging of the whole body*. Mosby; pp.1694-1706; **Date of Publication:** 1994; **Place of Publication:** U.S.
140. **Author:** W. Press; **Title:** "Numerical Recipes in C"; 2nd Edition, Cambridge University Press; pp. 402-420; **Date of Publication:** 1992; **Place of Publication:** unknown.
141. **Author:** M.S. Brown, M.F. McNitt-Gray, J.G. Goldin and D.R. Aberle; **Title:** "Model-based segmentation architecture for lung nodule detection in CT"; *RSNA 2000 annual meeting*.
142. **Author:** S.G. Erberich, K.S. Song, H. Arakawa, H.K. Huang, R. Webb, K.S. Hoo, B.W. Loo; **Title:** "Knowledge-based lung nodule detection from helical CT" (Text of Publication only as Figures are not available); *RSNA 1997 annual meeting*.
143. **Author:** K. Kanazawa, M. Kubo, N. Niki, H. Satoh, H. Ohmatsu, K. Eguchi, N. Moriyama; **Title:** "Computer Assisted Diagnosis of Lung Cancer Using Helical X-ray CT"; *Proceedings of ICPR*, pp. 381-385; **Date of Publication:** 1996; **Place of Publication:** U.S.
144. **Author:** N. Otsu; **Title:** "A threshold selection method from gray-level histograms"; *IEEE Trans. Systems Man Cybernet*, 9(1), pp. 62-66; **Date of Publication:** 1979; **Place of Publication:** Japan.
145. **Author:** C.L. Novak, D.P. Naidich, L. Fan, J. Qian, J.P. Ko, A.N. Rubinowitz; **Title:** "Improving Radiologists' Confidence of Interpreting Low-dose Multidetector Lung CT screening Studies Using an Interactive CAD system"; Scientific paper presentation, RSNA 87th scientific assembly and annual meeting, Nov. 25-30, 2001.

146. **Author:** S. G. Armato, III, F. Li, M.L. Giger; **Title:** "Performance of Automated CT Lung Nodule Detection on Missed Cancers"; scientific paper presentation, RSNA 87th scientific assembly and annual meeting, Nov. 25-30, 2001.
147. **Author:** S.H. Heywang-Koebrunner, B. Lommatzsch, et al.; **Title:** "Comparison of spiral and conventional CT in the detection of pulmonary nodules(abstract)"; *Radiology, RSNA 1992 annual meeting.*
148. **Author:** M.K. Gurcan, N. Petrick, B. Sahiner, H.P. Chan, P.N. Cascade, E.A. Kazerooni, L.M. Hadjiiski; **Title:** "Computerized lung nodule detection on thoracic CT images: combined rule-based and statistical classifier for false positive reduction"; *SPIE*, Vol. 4322, pp. 686-692; **Date of Publication:** 2001; **Place of Publication:** U.S.
149. **Author:** O. Karacan, O.A. Ibis, S. Akcay, O. Akkoca, F.O. Eyuboglu, and M. Coskun; **Title:** "Chest radiography and the solitary pulmonary nodule"; *Journal of Radiology*; **Date of Publication:** 2002; **Place of Publication:** unknown.

The above-referenced documents are listed on PTO Form 1449. We have enclosed the cited documents to facilitate reference to them.


Applicants are not aware of any other references to be identified at this time. If the Examiner has any questions or comments relating to the present application, he or she is respectfully invited to contact Applicants' attorney at the telephone number set forth below.

Respectfully submitted,



Gregory W. Bachmann
Registration No.: 41,593
Attorney for Applicant(s)

HOFFMANN & BARON, LLP
6900 Jericho Turnpike
Syosset, New York 11791
(516) 822-3550
GWB/dlb
180800

	FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE (Rev. 2-32) PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. 955-41	SERIAL NO. 10/688,267
	INFORMATION DISCLOSURE STATEMENT BY APPLICANT	APPLICANT Reeves et al.	CONFIRMATION NO. Unassigned
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U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	6,205,350	3/20/01	Lorenz et al.			
	5,877,771	3/2/99	Drebin et al.			
	5,825,936	10/20/98	Clarke et al.			
	5,712,926	1/27/98	Eberhard et al.			
	5,666,434	9/9/97	Nishikawa et al.			
	5,351,067	9/27/94	Lumelsky et al.			
	5,289,374	2/22/94	Doi et al.			
	5,283,837	2/1/94	Wood			
	5,228,443	7/20/93	Tatar			

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION	
						YES	NO
	01-78005	10/18/01	WO				

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

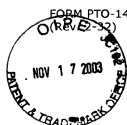
		Author: A. Akanuma; Title: "Clinical method to estimate time of origin and maximum volume of malignant tumors"; <i>Radiation Medicine</i> , 1(1):89-104; Date of Publication: Jan.-Mar. 1983; Place of Publication: Japan.
		Author: E. Arana, P. Delicado, and L. Marti-Bonmati.; Title: "Validation procedures in radiologic diagnostic models"; Neural network and logistic regression. <i>Investigative Radiology</i> , 34(10):636-642; Date of Publication: October 1999; Place of Publication: Spain.

EXAMINER

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		<p>Author: S. G. Armato, III, M. L. Giger, K. Ashizawa, and H. MacMahon; Title: "Automated lung segmentation in digital lateral chest radiographs"; <i>Medical Physics</i>, 25(8):1507-1520; Date of Publication: August 1998; Place of Publication: U.S.</p>
		<p>Author: S. G. Armato, III, M. L. Giger, C. J. Moran, J. T. Blackburn, K. Doi, and H. MacMahon; Title: "Computerized detection of pulmonary nodules on CT scans"; <i>Radiographics</i>, 19(5):1303-1311; Date of Publication: Sep.-Oct. 1999; Place of Publication: U.S.</p>
		<p>Author: P. J. Besl and R. C. Jain; Title: "Invariant surface characteristics for 3D object recognition in range images"; <i>Computer Vision, Graphics, and Image Processing</i>, 33(1):33-80; Date of Publication: January 1986; Place of Publication: U.S.</p>
		<p>Author: R. N. Bracewell and S. J. Wernecke; Title: "Image reconstruction over a finite field of view"; <i>Journal of the Optical Society of America</i>, 65:1342-1346; Date of Publication: 1975; Place of Publication: U.S.</p>
		<p>Author: M. S. Brown, M. F. McNitt-Gray, N. J. Mankovich, J. G. Goldin, J. Hiller, L. S. Wilson, and D. R. Aberle; Title: "Method for segmenting chest CT image data using an anatomical model: Preliminary results"; <i>IEEE Transactions on Medical Imaging</i>, 16(6):828-839; Date of Publication: December 1997; Place of Publication: U.S.</p>
		<p>Author: M. J. Carreira, D. Cabello, M. G. Penedo, and A. Mosquera; Title: "Computer-aided diagnoses: Automatic detection of lung nodules"; <i>Medical Physics</i>, 25(10):1998-2006; Date of Publication: October 1998; Place of Publication: Spain.</p>
		<p>Author: G. Cittadini Jr., R. Conzi, and G. Motta; Title: "Spiral computed tomography in the diagnosis and staging of bronchopulmonary carcinoma"; <i>Chir Ital</i>, 47(3):13-17; Date of Publication: 1995; Place of Publication:</p>
		<p>Author: J. Collins and E. J. Stern; Title: "Ground-glass opacity at CT: the ABCs"; <i>AJR American Journal of Roentgenology</i>, 169(2):355-367; Date of Publication: August 1997; Place of Publication: U.S.</p>

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication with applicant.

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Unassigned

FILING DATE
October 17, 2003

GROUP
Unassigned



Author: V. P. Collins, R. K. Loeffler, and H. Tivey; **Title:** "Observations on growth rates of human tumors"; *American Journal of Roentgenology*, 76:988-1000; **Date of Publication:** 1956; **Place of Publication:** U.S.

Author: ACR-NEMA Standards Committee. *Digital Imaging and Communications in Medicine (DICOM): Version 3.2*. Rosslyn, VA; **Date of Publication:** 1999; **Place of Publication:** U.S.

Author: A. M. Cormack; **Title:** "Representation of a function by its line integrals with some radiological applications"; *Journal of Applied Physics*, 34:2722-2727; **Date of Publication:** 1963; **Place of Publication:** U.S.

Author: A. M. Cormack; **Title:** "Representation of a function by its line integrals with some radiological applications II"; *Journal of Applied Physics*, 34:2908-2913; **Date of Publication:** 1964; **Place of Publication:** U.S.

Author: P. Croisille, M. Souto, M. Cova, S. Wood, Y. Afework, J. E. Kuhlman, and E. A. Zerhouni; **Title:** "Pulmonary nodules: Improved detection with vascular segmentation and extraction with spiral CT"; Work in progress. *Radiology*, 197(2):397-401; **Date of Publication:** November 1995; **Place of Publication:** U.S.

Author: S. Dholakia and D. C. Rappaport; **Title:** "The solitary pulmonary nodule. Is it malignant or benign?"; *Postgraduate Medicine*, 99(2):246-250; **Date of Publication:** February 1996; **Place of Publication:** U.S.

Author: C. E. Engeler, J. H. Tashjian, S. W. Trenkner, and J. W. Walsh; **Title:** "Ground-glass opacity of the lung parenchyma: a guide to analysis with high-resolution CT"; *AJR American Journal of Roentgenology*, 160(2):249-251; **Date of Publication:** February 1993; **Place of Publication:** U.S.

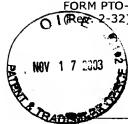
Author: B. J. Flehinger, M. Kimmel, T. Polyak, and M. R. Melamed; **Title:** "Screening for lung cancer"; The Mayo Lung Project revisited. *Cancer*, 72(5):1573-1580; **Date of Publication:** Sep. 1 1993; **Place of Publication:** U.S.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication with applicant.

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 SERIAL NO.
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 APPLICANT
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 CONFIRMATION NO.
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 GROUP
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Author: R. S. Fontana, D. R. Sanderson, L. B. Woolner, W. F. Taylor, W. E. Miller, J. R. Muhm, P. E. Bernatz, W. S. Payne, P. C. Pairolero, and E. J. Bergstrahl; Title: "Screening for lung cancer"; A critique of the Mayo Lung Project. *Cancer*, 67(4 (suppl.)):1155-1164; Date of Publication: Feb. 15 1991; Place of Publication: U.S.

Author: A. Van Gelder and J. Wilhelms; Title: "Topological considerations in isosurface generation"; *ACM Transactions on Graphics*, 13(4):337-375; Date of Publication: October 1994; Place of Publication: U.S.

Author: M. L. Giger, K. T. Bae, and H. MacMahon; Title: "Computerized detection of pulmonary nodules in computed tomography images"; *Investigative Radiology*, 29(4):459-465; Date of Publication: April 1994; Place of Publication: U.S.

Author: M. L. Giger, K. Doi, and H. MacMahon; Title: "Image feature analysis and computer-aided diagnosis in digital radiography. 3. Automated detection of nodules in peripheral lung fields"; *Medical Physics*, 15(2):158-166; Date of Publication: Mar.-Apr. 1988; Place of Publication: U.S.

Author: R. C. Gonzales and R. E. Woods; *Digital Image Processing*. Addison-Wesley, Reading, MA; Date of Publication: 1992; Place of Publication: U.S.

Author: J. W. Green and C. C. Lushbaugh; Title: "Histopathological study of the mode of inhibition of cellular proliferation by urethane"; *Cancer Research*, 9:199-209; Date of Publication: 1949; Place of Publication: U.S.

Author: Gurney, Jud W.; Title: "Determining the likelihood of malignancy in solitary pulmonary nodules with Bayesian analysis"; Part 1. Theory. *Radiology*, 186(2):405-413; Date of Publication: February 1993; Place of Publication: U.S.

Author: J. A. Hanley and B. J. McNeil; Title: "The meaning and use of the area under a receiver operating characteristic (ROC) curve"; *Radiology*, 143(1):29-36; Date of Publication: April 1982; Place of Publication: Canada.

EXAMINER

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Author: C.I. Henschke, D.I. McCauley, D.F. Yankelevitz, D. P. Naidich, G. McGuinness, O. S. Miettinen, D. M. Libby, M. W. Pasmantier, J. Koizumi, N. K. Altorki, and J. P. Smith; **Title:** "Early Lung Cancer Action Project: overall design and findings from baseline screening;" *Lancet*, 354(9173):99-105; **Date of Publication:** July 1999; **Place of Publication:** U.S.

Author: C. J. Herold, A. A. Bankier, and D. Fleischmann; **Title:** "Lung metastases"; *European Radiology*, 6(5):596-606; **Date of Publication:** 1996; **Place of Publication:** Austria.

Author: G. N. Hounsfield; **Title:** "Computerized transverse axial scanning (tomography). I. Description of system"; *British Journal of Radiology*, 46(552):1016-1022; **Date of Publication:** December 1973; **Place of Publication:** England.

Author: G. N. Hounsfield; **Title:** "Computed medical imaging"; Nobel lecture, December 8, 1979. *Journal of Computer Assisted Tomography*, 4(5):665-674; **Date of Publication:** October 1980; **Place of Publication:** England.

Author: Z. Huo, M. L. Giger, C. J. Vyborny, U. Bick, P. Lu, D. E. Wolverton, and R. A. Schmidt; **Title:** "Analysis of spiculation in the computerized classification of mammographic masses"; *Medical Physics*, 22(10):1569-1579; **Date of Publication:** October 1995; **Place of Publication:** U.S.

Author: Z. Huo, M. L. Giger, C. J. Vyborny, D. E. Wolverton, R. A. Schmidt, and K. Doi; **Title:** "Automated computerized classification of malignant and benign masses on digitized mammograms"; *Academic Radiology*, 5(3):155-168; **Date of Publication:** March 1998; **Place of Publication:** U.S.

Author: S. Itoh, M. Ikeda, T. Isomura, T. Endo, K. Yamakawa, K. Itoh, S. Naganawa, K. Maruyama, and T. Ishigaki; **Title:** "Screening helical CT for mass screening of lung cancer: application of low-dose and single-breath-hold scanning"; *Radiation Medicine*, 16(2):75-83; **Date of Publication:** Mar.-Apr. 1998; **Place of Publication:** Japan.

Author: R. Jain, R. Kasturi, and B. G. Schunck. *Machine Vision*. McGraw-Hill, New York; **Date of Publication:** 1995; **Place of Publication:** U.S.

EXAMINER

DATE CONSIDERED

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GROUP
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Author: L. R. Kaiser and J. B. Shrager; **Title:** "Video-assisted thoracic surgery: the current state of the art"; *AJR American Journal of Roentgenology*, 99(2):246-250; **Date of Publication:** February 1996; **Place of Publication:** U.S.

Author: W. A. Kalender; **Title:** "Technical foundations of spiral CT"; *Seminars in Ultrasound, CT, and MRI*, 15(2):81-89; **Date of Publication:** April 1994; **Place of Publication:** Germany.

Author: W. A. Kalender; "Thin-section three-dimensional spiral CT: is isotropic imaging possible?"; *Radiology*, 197(3):578-580; **Date of Publication:** December 1995; **Place of Publication:** Germany.

Author: W. A. Kalender, W. A. Seissle, E. Klotz, and P. Vock; **Title:** "Spiral volumetric CT with single breath-hold technique continuous transport and continuous scanner rotation"; *Radiology*, 176(1):181-183; **Date of Publication:** July 1990; **Place of Publication:** Switzerland.

Author: M. Kaneko, K. Eguchi, H. Ohmatsu, R. Kakinuma, T. Naruke, K. Suemasu, and N. Moriyama; **Title:** "Peripheral lung cancer: screening and detection with low-dose spiral CT versus radiography"; *Radiology*, 201(3):798-802; **Date of Publication:** December 1996; **Place of Publication:** Japan

Author: Y. Kawata, N. Niki, H. Ohmatsu, K. Eguchi, and N. Moriyama; **Title:** "Shape analysis of pulmonary nodules based on thin section CT images"; *SPIE Proceedings*, 3034:964-974; **Date of Publication:** February 1997; **Place of Publication:** Japan.

Author: J. H. Kim, J. G. Im, M. C. Han, B. G. Min, and C. W. Lee; **Title:** "Improved visualization of simulated nodules by adaptive enhancement of digital chest radiography"; *Academic Radiology*, 1(2):93-99; **Date of Publication:** October 1994; **Place of Publication:** South Korea.

Author: T. Kobayashi, X.-W. Xu, H. MacMahon, C. E. Metz, and K. Doi; **Title:** "Effect of a computer-aided diagnosis scheme on radiologists' performance in detection of lung nodules on radiographs"; *Radiology*, 199(3):843-848; **Date of Publication:** June 1996; **Place of Publication:** U.S.

Author: A. K. Laird; **Title:** "Dynamics of tumor growth: Comparison of growth rates and extrapolation of growth curve to one cell"; *British Journal of Cancer*, 19:278-291; **Date of Publication:** 1965; **Place of Publication:** U.S.

EXAMINER

DATE CONSIDERED

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		Author: S. H. Landis, T. Murray, S. Bolden, and P. A. Wingo; Title: "Cancer statistics, 1999"; <i>CA: A Cancer Journal for Clinicians</i> , 49(1):8-31; Date of Publication: Jan.-Feb. 1999; Place of Publication: U.S.
		Author: G. A. Lillington; Title: "Management of solitary pulmonary nodules"; <i>Postgraduate Medicine</i> , 101(3):145-150; Date of Publication: March 1997; Place of Publication: U.S.
		Author: W. E. Lorensen and H. E. Cline; Title: "Marching cubes: A high resolution 3D surface construction algorithm"; <i>Computer Graphics</i> , 21(4):163-169; Date of Publication: July 1987; Place of Publication: U.S.
		Author: F. Mao, W. Qian, J. Gaviria, and L. P. Clarke; Title: "Fragmentary window filtering for multiscale lung nodule detection: Preliminary study"; <i>Academic Radiology</i> , 5(4):306-311; Date of Publication: April 1998; Place of Publication: U.S.
		Author: T. Matsumoto, H. Yoshimura, K. Doi, M. L. Giger, A. Kano, H. MacMahon, K. Abe, and S. M. Montner; Title: "Image feature analysis of false-positive diagnoses produced by automated detection of lung nodules"; <i>Investigative Radiology</i> , 27(8):587-597; Date of Publication: August 1992; Place of Publication: U.S.
		Author: M. F. McNitt-Gray, E. M. Hart, N. Wyckoff, J. W. Sayre, J. G. Goldin, and D. R. Aberle; Title: "A pattern classification approach to characterizing solitary pulmonary nodules imaged on high resolution CT: Preliminary results"; <i>Medical Physics</i> , 26(6):880-888; Date of Publication: June 1999; Place of Publication: U.S.
		Author: M.R. Melamed, B. J. Flehinger, M. B. Zaman, R. T. Heelan, W. A. Perchick, and N. Martini; Title: "Screening for early lung cancer. Results of the Memorial Sloan-Kettering study in New York"; <i>Chest</i> , 86(1):44-53; Date of Publication: July 1984; Place of Publication: U.S.
		Author: S. Mitruka, R. J. Landreneau, M. J. Mack, L. S. Fetterman, J. Gammie, S. Bartley, S. R. Sutherland, C. M. Bowers, R. J. Keenan RJ, P. F. Ferson, and R. J. Weyant; Title: "Diagnosing the indeterminate pulmonary nodule: percutaneous biopsy versus thoracoscopy"; <i>Surgery</i> , 118(4):676-684; Date of Publication: October 1995; Place of Publication: U.S.

EXAMINER

DATE CONSIDERED

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Unassigned

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October 17, 2003

GROUP
Unassigned



Author: O. Monga, R. Deriche, and J.-M. Rocchisani; **Title:** "3D edge detection using recursive filtering: Application to scanner images"; *Computer Vision, Graphics, and Image Processing: Image Understanding*, 53(1):76-87; **Publication:** January 1991; **Place of Publication:** France.

Author: H. Nathan; **Title:** "Management of solitary pulmonary nodules. An organized approach based on growth rate and statistics"; *JAMA*, 227(10):1141-1144; **Publication:** March 1974; **Place of Publication:** U.S.

Author: M. H. Nathan, V. P. Collins, and R. A. Adams; **Title:** "Differentiation of benign and malignant pulmonary nodules by growth rate"; *Radiology*, 79:221-231; **Publication:** 1962; **Place of Publication:** U.S.

Author: R. Pearl and L. J. Reed; **Title:** "On the rate of growth of the population of the United States since 1790 and its mathematical presentation"; *Proceedings of the National Academy of Sciences*, 6:275-285; **Date of Publication:** 1920; **Place of Publication:** U.S.

Author: J. Peiss, M. Verlande, W. Ameling, and R. W. Guenther; **Title:** "Classification of lung tumors on chest radiographs by fractal texture analysis"; *Investigative Radiology*, 31(10):625-629; **Date of Publication:** October 1996; **Place of Publication:** Germany.

Author: M. G. Penedo, M. J. Carreira, A. Mosquera, and D. Cabello; **Title:** "Computer-aided diagnosis: A neural-network-based approach to lung nodule detection"; *IEEE Transactions on Medical Imaging*, 17(6):872-880; **Date of Publication:** December 1998; **Place of Publication:** Spain.

Author: R. J. Prokop and A. P. Reeves; **Title:** "A survey of moment-based techniques for unoccluded object representation and recognition"; *CVGIP: Graphical Models and Image Processing*, 54(5):438-360; **Date of Publication:** September 1992; **Place of Publication:** U.S.

Author: R. D. Pugatch; **Title:** "Radiologic evaluation in chest malignancies. A review of imaging modalities"; *Chest*, 107(6 (suppl.)):294S-297S; **Date of Publication:** June 1995; **Place of Publication:** U.S.

Author: A. P. Reeves, W. J. Kostis, C. I. Henschke, B. Zhao, and D. F. Yankelevitz; **Title:** "Three-dimensional feature characterization of small pulmonary nodules from helical CT images"; *Radiology*, 209P:163; **Date of Publication:** November 1998; **Place of Publication:** U.S.

EXAMINER

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		<p>Author: A. P. Reeves, W. J. Kostis, D. F. Yankelevitz, and C. I. Henschke; Title: "Three-dimensional shape characterization of solitary pulmonary nodules from helical CT scans"; In H. U. Lemke, M. W. Vannier, K. Inamura, and A. G. Farman, editors, <i>Proceedings of Computer Assisted Radiology and Surgery (CARS '99)</i>, pages 83-87. Elsevier Science; Date of Publication: June 1999; Place of Publication: U.S.</p>
		<p>Author: A. P. Reeves, R. J. Prokop, S. E. Andrews, and F. P. Kuhl; Title: "Three-dimensional shape analysis using moments and Fourier descriptors"; <i>IEEE Transactions on Pattern Analysis and Machine Intelligence</i>, 10(6):937-943; Date of Publication: November 1988; Place of Publication: U.S.</p>
		<p>Author: A. P. Reeves and B. S. Wittner; Title: "Shape analysis of three dimensional objects using the method of moments"; In <i>Proceedings of 1983 IEEE Conference on Computer Vision and Pattern Recognition</i>, pages 20-26; Date of Publication: June 1983; Place of Publication: U.S.</p>
		<p>Author: J. Remy, M. Remy-Jardin, F. Giraud, and J. Wannebroucq; Title: "Spiral volumetric scanning and its applications in thoracic pathology"; <i>Rev Mal Respir</i>, 11(1):13-27; Date of Publication: 1994; Place of Publication: U.S.</p>
		<p>Author: T. W. Ridler and S. Calvard; Title: "Picture thresholding using an iterative selection method"; <i>IEEE Transactions on Systems, Man, and Cybernetics</i>, SMC-8(8):630-632; Date of Publication: August 1978; Place of Publication: London.</p>
		<p>Author: K. V. Rolston, S. Rodriguez, M. Dholakia, E. Whimbey E, and I. Raad; Title: "Pulmonary infections mimicking cancer: a retrospective; three-year review"; <i>Support Care Cancer</i>, 5(2):90-93; Date of Publication: March 1997; Place of Publication: U.S.</p>
		<p>Author: S. Sanada, K. Doi, and H. MacMahon; Title: "Image feature analysis and computer-aided diagnosis in digital radiography: automated delineation of posterior ribs in chest images"; <i>Medical Physics</i>, 18(5):964-971; Date of Publication: Sep.-Oct. 1991; Place of Publication: U.S.</p>
		<p>Author: S. Sasaoka, H. Takabatake, M. Mori, H. Natori, and S. Abe; Title: "Digital analysis of pulmonary nodules-potential usefulness of computer-aided diagnosis for differentiation of benign from malignant nodules"; <i>Nippon Kyobu Shikkan Gakkai Zasshi</i>, 33(5):489-496; (With English Abstract) Date of Publication: May 1995; Place of Publication: U.S.</p>

EXAMINER

DATE CONSIDERED

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Author: M. D. Seemann, A. Staebler, T. Beinert, H. Dienemann, B. Obst, M. Matzko, C. Pistitsch, and M. F. Reiser; **Title:** "Usefulness of morphological characteristics for the differentiation of benign from malignant solitary pulmonary lesions using HRCT," *European Radiology*, 9(3):409-417; **Date of Publication:** 1999; **Place of Publication:** Germany.

Author: R. Shah, S. Sabanathan, J. Richardson, A. J. Mearns, and C. Goulden; **Title:** "Results of surgical treatment of stage I and II lung cancer"; *Journal of Cardiovascular Surgery*, 37(2):169-172; **Date of Publication:** April 1996; **Place of Publication:** United Kingdom.

Author: R. H. Sherrier, C. Chiles, W. E. Wilkinson, G. A. Johnson, and C. E. Ravin; **Title:** "Effects of image processing on nodule detection rates in digitized chest radiographs: ROC study of observer performance"; *Radiology*, 166(2):447-450; **Date of Publication:** February 1998; **Place of Publication:** U.S.

Author: S. Sone, S. Takashima, F. Li, Z. Yang, T. Honda, Y. Maruyama, M. Hasegawa, T. Yamanda, K. Kubo, K. Hanamura, and K. Asakura; **Title:** "Mass screening for lung cancer with mobile spiral computed tomography scanner"; *Lancet*, 351(9111):1242-1245; **Date of Publication:** April 1998; **Place of Publication:** Japan.

Author: M. Sonka, G. Sundararmoorthy, and E. A. Hoffman; **Title:** "Knowledge-based segmentation of intrathoracic airways from multidimensional high resolution CT images"; *SPIE*, 2168:73-85; **Date of Publication:** August 1994; **Place of Publication:** U.S.

Author: J. S. Spratt, J. S. Meyer, and J. A. Spratt; **Title:** "Rates of growth of human solid neoplasms: Part I"; *Journal of Surgical Oncology*, 60(2):137-146; **Date of Publication:** October 1995; **Place of Publication:** U.S.

Author: S. J. Swensen, J. R. Jett, W. S. Payne, R. W. Viggiano, P. C. Pairolero, and V. F. Trastek; **Title:** "An integrated approach to evaluation of the solitary pulmonary nodule"; *Mayo Clinic Proceedings*, 65(2):173-186; **Date of Publication:** February 1990; **Place of Publication:** U.S.

Author: S. J. Swensen, M. D. Silverstein, D. M. Ilstrup, C. D. Schleck, and E. S. Edell; **Title:** "The probability of malignancy in solitary pulmonary nodules. Application to small radiologically indeterminate nodules"; *Archives of Internal Medicine*, 157(8):849-855; **Date of Publication:** April 1997; **Place of Publication:** U.S.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication with applicant.

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Author: S. Toshioka, K. Kanazawa, N. Niki, H. Satoh, H. Ohmatsu, K. Eguchi, and N. Moriyama; **Title:** "Computer aided diagnosis system for lung cancer based on helical CT images"; *SPIE Proceedings*, 3034:975-984; **Date of Publication:** February 1997; **Place of Publication:** Japan.

Author: J. D. Urschel; **Title:** "Surgical treatment of peripheral small cell lung cancer"; *Chest Surg Clin N Am*, 7(1):95-103; **Date of Publication:** February 1997; **Place of Publication:** U.S.

Author: K. Usuda, Y. Saito, M. Sagawa, M. Sato, K. Kanma, S. Takahashi, C. Endo, Y. Chen, A. Sakurada, and S. Fujimura; **Title:** "Tumor doubling time and prognostic assessment of patients with primary lung cancer"; *Cancer*, 74(8):2239-2244; **Date of Publication:** October 1994; **Place of Publication:** Japan.

Author: N. F. Vittitoe, J. A. Baker, and C. E. Floyd; **Title:** "Fractal texture analysis in computer-aided diagnosis of solitary pulmonary nodules"; *Academic Radiology*, 4(2):96-101; **Date of Publication:** February 1997; **Place of Publication:** U.S.

Author: P. Vock, M. Soucek, M. Daepf, and W. A. Kalender; **Title:** "Lung: spiral volumetric CT with single-breath-hold technique"; *Radiology*, 176(3):864-867; **Date of Publication:** September 1990; **Place of Publication:** Switzerland.

Author: W. Weiss; **Title:** "Implications of tumor growth rate for the natural history of lung cancer"; *Journal of Occupational Medicine*, 26(5):345-352; **Date of Publication:** May 1984; **Place of Publication:** U.S.

Author: S. A. Wood, E. A. Zerhouni, J. D. Hoford, E. A. Hoffman, and W. Mitzner; **Title:** "Measurement of three-dimensional lung tree structures by using computed tomography"; *Journal of Applied Physiology*, 79(5):1687-97; **Date of Publication:** November 1995; **Place of Publication:** U.S.

Author: X.-W. Xu and K. Doi; **Title:** "Image feature analysis for computer-aided diagnosis: Accurate determination of ribcage boundary in chest radiographs"; *Medical Physics*, 22(5):617-626; **Date of Publication:** May 1995; **Place of Publication:** U.S.

Author: X.-W. Xu and K. Doi; **Title:** "Image feature analysis for computer-aided diagnosis: Detection of right and left hemidiaphragm edges and delineation of lung field in chest radiographs"; *Medical Physics*, 23(9):1613-1624; **Date of Publication:** September 1996; **Place of Publication:** U.S.

EXAMINER

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		Author: X.-W. Xu, K. Doi, T. Kobayashi, H. MacMahon, and M. L. Giger; Title: "Development of an improved CAD scheme for automated detection of lung nodules in digital chest images"; <i>Medical Physics</i> , 24(9):1395-1403; Date of Publication: September 1997; Place of Publication: U.S.
		Author: S. Yamamoto, I. Tanaka, M. Senda, Y. Tateno, T. Iinuma, T. Matsumoto, and M. Matsumoto; Title: "Image processing for computer-aided diagnosis of lung cancer by CT (LSCT)"; <i>Systems and Computers in Japan</i> , 25(2):67-80; Date of Publication: February 1994; Place of Publication: Japan.
		Author: D. F. Yankelevitz, C. I. Henschke, J. H. Koizumi, N. K. Altorki, and D. Libby; Title: "CT-guided transthoracic needle biopsy of small solitary pulmonary nodules"; <i>Clinical Imaging</i> , 21(2):107-10; Date of Publication: Mar.-Apr. 1997; Place of Publication: U.S.
		Author: H. Yoshimura, M. L. Giger, K. Doi, H. MacMahon, and S. M. Montner; Title: "Computerized scheme for the detection of pulmonary nodules: A nonlinear filtering technique"; <i>Investigative Radiology</i> , 27(2):124-129; Date of Publication: February 1992; Place of Publication: U.S.
		Author: P. Chandrasekhar, L. Wolff, E. Zerhouni, and W. Mitzner; Title: "Segmentation of 3 pulmonary trees using mathematical morphology"; In P. Maragos, R. W. Schafer, and M. A. Butt, editors, <i>Mathematical Morphology and its Applications to Image and Signal Processing</i> , pages 409-416. Kluwer Academic Press; Date of Publication: May 1996; Place of Publication: U.S.
		Author: T. Fleiter, E.M. Merkle, A.J. Aschoff, G. Lang, M. Stein, J. Gorich, F. Liewald, N. Rilinger, and R. Sokiranski; Title: "Comparison of real-time virtual and fiberoptic bronchoscopy in patients with bronchial carcinoma: opportunities and limitations"; <i>American Journal of Roentgenology</i> , 169(2):1591-1595; Date of Publication: December 1997; Place of Publication: Germany.
		Author: M. L. Giger, K.T. Bae, and H. MacMahon; Title: "Image processing and computer-aided diagnosis"; <i>Radiologic Clinics of North America</i> , 34(3):565-596; Date of Publication: May 1996; Place of Publication: U.S.
		Author: P. A. Heng, P. F. Fung, T. T. Wong, Y. H. Siu, and H. Sun; Title: "Interactive navigation and bronchial tube tracking in virtual bronchoscopy"; <i>Studies in Health Technology and Informatics</i> , 62:130-133; Date of Publication: 1999; Place of Publication: Hong Kong.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication with applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.W./

FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

APPLICANT
Reeves et al.

CONFIRMATION NO.
Unassigned

(Use several sheets if necessary)

FILING DATE
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GROUP
Unassigned

Author: W. J. Kostis, A. P. Reeves, D. F. Yankelvit, and C. I. Henschke;
Title: "Three-dimensional segmentation of solitary pulmonary nodules from helical CT scans"; In H. U. Lemke, M. W. Vannier, K. Inamura, and A. G. Farman, editors, *Proceedings of Computer Assisted Radiology and Surgery (CARS '99)*, pages 203-207. Elsevier Science; **Date of Publication:** June 1999; **Place of Publication:** U.S.

Author: F. Maes, A. Collingnon, D. Vandermeulen, G. Marchal, and P. Suetens. **Title:** "Multimodality image registration by maximization of mutual information"; *IEEE Transactions on Medical Imaging*, 16(2):187-198; **Date of Publication:** April 1997; **Place of Publication:** Belgium.

Author: W. Park, E. A. Hoffman, and M. Sonka; **Title:** "Segmentation of intrathoracic airway trees: A fuzzy logic approach"; *IEEE Transactions on Medical Imaging*, 17(4):489-497; **Date of Publication:** August 1998; **Place of Publication:** U.S.

Author: A. P. Reeves and W. J. Kostis; **Title:** "Computer-aided diagnosis for lung cancer"; *Radiologic Clinics of North America*, 38(3):497-509; **Date of Publication:** May 2000; **Place of Publication:** U.S.

Author: R. M. Summers, D. H. Feng, S. M. Holland, M. C. Sneller, and J. H. Shelhamer; **Title:** "Virtual bronchoscopy: Segmentation method for real-time display"; *Radiology*, 200(3):857-862; **Date of Publication:** September 1996; **Place of Publication:** U.S.

Author: J. K. Udupa; **Title:** "Three-dimensional visualization and analysis methodologies: a current perspective"; *Radiographics*, 19(3):783-806; **Date of Publication:** May-Jun. 1999; **Place of Publication:** U.S.

Author: W. M. Wells, III, P. Viola, H. Atsumi, S. Nakajima, and R. Kikinis; **Title:** "Multi-modal volume registration by maximization of mutual information"; *Medical Image Analysis*, 1(1):35-51; **Date of Publication:** March 1996; **Place of Publication:** U.S.

Author: D. F. Yankelevitz, R. Gupta, B. Zhao, and C. I. Henschke; **Title:** "Small pulmonary nodules: Evaluation with repeat CT-preliminary experience"; *Radiology*, 212(2):561-566; **Date of Publication:** August 1999; **Place of Publication:** U.S.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication with applicant.

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GROUP
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Author: D. F. Yankelevitz, A. P. Reeves, W. J. Kostis, B. Zhao, and C. I. Henschke; **Title:** "Determination of malignancy in small pulmonary nodules based on volumetrically determined growth rates"; *Radiology*, 209P:375; **Date of Publication:** November 1998; **Place of Publication:**

Author: D. F. Yankelevitz, A. P. Reeves, W. J. Kostis, B. Zhao, and C. I. Henschke; **Title:** "Small Pulmonary Nodules: Volumetrically Determined Growth Rates Based on CT Evaluation"; *Radiology*, 217(1):251-256; **Date of Publication:** October 2000; **Place of Publication:** U.S.

Author: A. P. Reeves and W. J. Kostis; **Title:** "Computer-Aided Diagnosis of Small Pulmonary Nodules"; *Seminars in Ultrasound, CT, and MRI*, 21(2):116-128; **Date of Publication:** April 2000; **Place of Publication:** U.S.

Author: B. Zhao, W. J. Kostis, A. P. Reeves, D. F. Yankelevitz, and C. I. Henschke; **Title:** "Consistent Segmentation of Repeat CT Scans for Growth Assessment in Pulmonary Nodules"; *Proceedings of the SPIE, Medical Imaging 1999*, 3661:1012-1018; **Date of Publication:** May 1999; **Place of Publication:** U.S.

Author: S. Hu, E. A. Hoffman, and J.M. Reinhardt; **Title:** "Automatic Lung Segmentation for Accurate Quantitation of Volumetric X-Ray CT Images"; *IEEE Transactions on Medical Imaging*, Vol. 20, No.6; **Date of Publication:** June 2001; **Place of Publication:** U.S.

Author: J. Hsieh; **Title:** "Generalized Adaptive Median Filters and their Application in Computed Tomography"; *SPIE*, Vol. 2298, pp. 662-669; **Date of Publication:** 1994; **Place of Publication:** U.S.

Author: J. Hsieh; **Title:** "Adaptive Trimmed Mean Filter for CT Imaging"; *Mathematical Methods in Medical Imaging III, Proceedings of SPIE*, Vol. 2299, pp.316-24; **Date of Publication:** 1994; **Place of Publication:** U.S.

Author: H. Soltanian-Zadeh, J.P. Windham and J. Soltanianzadeh; **Title:** "CT Artifact Correction: An Image Processing Approach"; *Medical Imaging 1996: Image Processing, Proceedings of SPIE*, Vol. 2710, pp. 477-485; **Date of Publication:** 1996; **Place of Publication:** U.S.

Author: A. P. Reeves, W. J. Kostis, D. F. Yankelevitz, C.I. Henschke; **Title:** "Analysis of Small Pulmonary Nodules without Explicit Segmentation of CT images"; *Radiological Society of North America - 2000 Scientific Program*, Vol. 217, pgs. 243-244; **Date of Publication:** November 2000; **Place of Publication:** U.S.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication with applicant.

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APPLICANT
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GROUP
Unassigned

Author: Y. Lee, T., Hara, H. Fujita, S. Itoh, and T. Ishigaki; **Title:** "Automatic Detection of Pulmonary Nodules in Helical CT Images Based on an Improved Template-Matching Technique"; *IEEE Transactions on Medical Imaging*, Vol. 20, No. 7, pgs. 595-604; **Date of Publication:** July 2001; **Place of Publication:** U.S.

Author: F. Maes, A. Collignon, D. Vandermeulen, G. Marchal and P. Suetens; **Title:** "Multimodality image registration by maximization of mutual information"; *IEEE Transactions on Medical Imaging*, Vol. 16, No. 2, pgs. 187-198; **Date of Publication:** April 1997; **Place of Publication:** U.S.

Author: Takagi, N.; Kawata, Y., Nikvi, N.; Morit, K.; Ohmatsu, H.; Kakinuma, R.; Eguchi, K.; Kusumoto, M.; Kaneko, M.; Moriyama, N.; **Title:** "Computerized characterization of contrast enhancement patterns for classifying pulmonary nodules"; *Image Processing, 2000. Proceedings. 2000 International Conference on* Vol. 1, pp. 188-191; **Date of Publication:** 2000; **Place of Publication:** U.S.

Author: A. P. Reeves, W. J. Kostis; **Title:** "Computer-Aided Diagnosis of Small Pulmonary Nodules"; *Seminars in Ultrasound, CT, and MRI*, Vol. 21, No. 2, pgs. 116-128; **Date of Publication:** April 2000; **Place of Publication:** U.S.

Author: W. J. Kostis, A. P. Reeves, D. F. Yankelevitz, C.I. Henschke; **Title:** "Three-dimensional segmentation of solitary pulmonary nodules from helical CT scans"; *CARS '99 Computer Assisted Radiology and Surgery: Proceedings of the 13th International Congress and Exhibition*, pgs. 203-7; **Date of Publication:** 1999; **Place of Publication:** U.S.

Author: Li Fan, Carol L. Novak, Jiangzhong Qian, Gerhard Kohl, and David P. Naidich; **Title:** "Automatic Detection of Lung Nodules from Multi-Slice Low Dose CT Images"; *Proc SPIE* 2001; 4322:1828-1835; **Date of Publication:** 2001; **Place of Publication:** U.S.

Author: Binsheng Zhao, Anthony Reeves, David Yankelevitz, and Claudia Henschke; **Title:** "Three-Dimensional multi-criterion automatic segmentation of pulmonary nodules of helical CT images"; *Optical Engineering*, 38(8):1340-1347; **Date of Publication:** 1999; **Place of Publication:**

Author: American Cancer Society; **Title:** "Cancer Facts & Figures 2002"; 1599 Clifton Road, NE, Atlanta, GA, 30329-4251.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication with applicant.

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Author: Claudia I. Henschke, D.P. Naidich, D.F. Yankelevitz, G. McGuinness, D.I. McCauley, J.P. Smith, D.M. Libby, M.W. Pasmanter, M. Vazquez, J. Koizumi, D. Fieder, N.K. Altorki, and O.S. Miettinen; **Title:** "Early Lung Cancer Action Project: Initial Findings on Repeat Screening"; **Cancer** July 1, 2001; 92(1):153-159; **Date of Publication:** July 1, 2001; **Place of Publication**

Author: S.G. Armato III, M.L. Giger, J.T. Blackburn, K. Doi, H. MacMahon; **Title:** "Three-dimensional approach to lung nodule detection in helical CT"; **SPIE**, vol. 3661, pp. 553-559; **Date of Publication:** 1999; **Place of Publication:** U.S.

Author: S.L. Lou, C.L. Chang, K.P. Lin and T. Chen; **Title:** "Object based deformation technique for 3-D CT lung nodule detection"; **SPIE**, vol. 3661, pp. 1544-1552; **Date of Publication:** 1999; **Place of Publication:** U.S.

Author: T. Okumura, T. Miwa, Jun-ichi Kako, S. Yamamoto, M. Matsumoto, Y. Taten, T. Linua and T. Matsumoto; **Title:** "Image processing for computer-aided diagnosis of lung cancer screening system by CT (LSCT)"; **SPIE**, vol. 3338, pp. 1314-1322; **Date of Publication:** 1998; **Place of Publication:** U.S.

Author: M. Fiebach, C. Wietholt, B.C. Render, S.G. Armato, K.R. Hoffmann, D. Wormanns and S. Diederich; **Title:** "Automatic detection of pulmonary nodules in low-dose screening thoracic CT examinations"; **SPIE**, vol. 3661, pp. 1434-1439; **Date of Publication:** 1999; **Place of Publication:** U.S.

Author: H. Taguchi, Y. Kawata and N. Niki, H. Satoh, H. Ohmatsu, K. Eguchi, M. Kaneko and N. Moriyama; **Title:** "Lung cancer detection based on helical CT images using curved surface morphology analysis"; **SPIE**, vol. 3661, pp. 1307-1313; **Date of Publication:** 1999; **Place of Publication:** U.S.

Author: S-C B. Lo, S-L A. Lou, J-S Lin, M.T. Freedman, M.V. Chien and S.K. Mun; **Title:** "Artificial convolution neural Network techniques and applications for lung nodule detection"; **IEEE transactions on medical imaging**, vol. 14, no.4, pp 711-718; **Date of Publication:** 1995; **Place of Publication:**

Author: W.J. Kostis; **Title:** "Three-dimensional computed tomographic image analysis for early cancer diagnosis in small pulmonary nodules"; Ph.D. dissertation, Cornell University; **Date of Publication:** 2001; **Place of Publication:** U.S.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication with applicant.

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APPLICANT
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Unassigned

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GROUP
Unassigned

Author: R. Kakinuma, H. Ohmatsu, M. Kaneko, K. Eguchi, K. Naruke, K. Nagai; **Title:** "Detection failures in spiral CT screening for lung cancer: analysis of CT findings"; Radiology, 212, pp.61-66; **Date of Publication:** 1999; **Place of Publication:** U.S.

Author: F. Li, S. Sone, H. Abe, H.M. MacMahon, S.G. Armato, K. Doi; **Title:** "Missed Lung Cancers in low-dose Helical CT Screening Obtained from a General Population"; scientific paper presentation, RSNA 87th scientific assembly and annual meeting, Nov. 25-30, 2001.

Author: M. Remy Jardin, F. Giraud, C-H Marquette; **Title:** "Pulmonary nodules: detection with thick section spiral CT versus conventional CT"; Radiology, 187(No.2), pp. 513-520; **Date of Publication:** 1993; **Place of Publication:** U.S.

Author: J.A. Buckley, W.W. Scott, S.S. Siegelman, et al.; **Title:** "Pulmonary nodules: effect of increased data sampling on detection with spiral CT and confidence in diagnosis"; Radiology, 196, pp. 395-400; **Date of Publication:** 1995; **Place of Publication:** U.S.

Author: Y. Kawata, N. Niki, H. Ohmatsu, M. Kusumoto, R. Kakinuma, K. Mori, N. Nishiyama, K. Eguchi, M. Kaneko, and N. Moriyama; **Title:** "Tracking interval changes of pulmonary nodules using a sequence of three-dimensional thoracic images"; In Medical Imaging 2000: Image Processing, Proceedings of SPIE, volume 3979, pages 86-96; **Date of Publication:** 2000; **Place of Publication:** U.S.

Author: Y. Kawata, N. Niki, H. Ohmatsu, M. Kusumoto, R. Kakinuma, K. Mori, N. Nishiyama, K. Eguchi, M. Kaneko, and N. Moriyama; **Title:** "Analysis of evolving processes in pulmonary nodules using a sequence of three-dimensional thoracic images"; In M. Sonka d K.M. Hanson, editors, *Medical Imaging 2001: Image Processing, Proceedings of SPIE*, volume 4322, pages 1890-1901; **Date of Publication:** 2001; **Place of Publication:** U.S.

Author: Z.-H. Cho, J. P. Jones, and M. Singh. *Foundations of Medical Imaging*. John Wiley and Sons Inc.; **Title:** "X-Ray Computerized Tomography", pp. 148-164; **Date of Publication:** 1993; **Place of Publication:** U.S.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication with applicant.

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GROUP
Unassigned

Author: A. K. Jain; **Title:** "Fundamentals of Digital Image Processing", Prentice Hall, Englewood Cliffs, NJ; pp. 384-389; **Date of Publication:** 1989; **Place of Publication:** U.S.

Author: S. N. Reske, R. Bares, U. Bull, A. Guhlmann, E. Moser, and M. F. Wannenmacher; **Title:** "[Clinical value of positron emission tomography (PET) in oncologic questions: results of an interdisciplinary consensus conference. Schirmerreschaft der Deutschen Gesellschaft for Nuklearmedizin.]" (Summary in English is provided on page 42); *Nuklearmedizin*, 35(2):42-52; **Date of Publication:** April 1996; **Place of Publication:** Germany.

Author: M. D. Seemann, T. Beinert, F. Spelsberg, B. Obst, H. Dienemann, U. Fink, P. Kohz, and M. Reiser; **Title:** "Differentiation of solitary pulmonary coin lesions by high-resolution computerized tomography" (Summary in English provided on page 580); *Radiology*, 36(7):579-585; **Date of Publication:** July 1996; **Place of Publication:** Germany.

Author: J. Serra; **Title:** *Image analysis and mathematical morphology*; pp. 34-92; Academic Press, London; **Date of Publication:** 1982; **Place of Publication:** London.

Author: J. Serra; **Title:** "Introduction to Morphological Filters"; *Image analysis and mathematical morphology; Volume 2: Theoretical advances*, pp. 101-114; Academic Press, London; **Date of Publication:** 1988; **Place of Publication:** London.

Author: S. W. Tamarkim; **Title:** "Spiral computed tomography and computed tomographic angiography"; In J. R. Haaga, C. F. Lanzieri, D. J. Sartoris, and E. A. Zehrouni, editors, *Computed tomography and magnetic resonance imaging of the whole body*. Mosby; pp. 1694-1706; **Date of Publication:** 1994; **Place of Publication:** U.S.

Author: W. Press; **Title:** "Numerical Recipes in C"; 2nd Edition, Cambridge University Press; pp. 402-420; **Date of Publication:** 1992; **Place of Publication:** unknown.

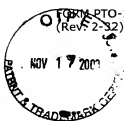
Author: M.S. Brown, M.F. McNitt-Gray, J.G. Goldin and D.R. Aberle; **Title:** "Model-based segmentation architecture for lung nodule detection in CT"; *RSNA 2000 annual meeting*.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication with applicant.

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GROUP
Unassigned

Author: S.G. Erberich, K.S. Song, H. Arakawa, H.K. Huang, R. Webb, K.S. Hoo, B.W. Loo; **Title:** "Knowledge-based lung nodule detection from helical CT" (Text of Publication only as Figures are not available); *RSNA 1997 annual meeting*.

Author: K. Kanazawa, M. Kubo, N. Niki, H. Satoh, H. Ohmatsu, K. Eguchi, N. Moriyama; **Title:** "Computer Assisted Diagnosis of Lung Cancer Using Helical X-ray CT"; *Proceedings of ICPR*, pp. 381-385; **Date of Publication:** 1996; **Place of Publication:** U.S.

Author: N. Otsu; **Title:** "A threshold selection method from gray-level histograms"; *IEEE Trans. Systems Man Cybernet*, 9(1), pp. 62-66; **Date of Publication:** 1979; **Place of Publication:** Japan.

Author: C.L. Novak, D.P. Naidich, L. Fan, J. Qian, J.P. Ko, A.N. Rubinowitz; **Title:** "Improving Radiologists' Confidence of Interpreting Low-dose Multidetector Lung CT screening Studies Using an Interactive CAD system"; Scientific paper presentation, *RSNA 87th scientific assembly and annual meeting*, Nov. 25-30, 2001.

Author: S. G. Armato, III, F. Li, M.L. Giger; **Title:** "Performance of Automated CT Lung Nodule Detection on Missed Cancers"; scientific paper presentation, *RSNA 87th scientific assembly and annual meeting*, Nov. 25-30, 2001.

Author: S.H. Heywang-Koebrunner, B. Lommatzsch, et al.; **Title:** "Comparison of spiral and conventional CT in the detection of pulmonary nodules (abstract)"; *Radiology, RSNA 1992 annual meeting*.

Author: M.K. Gurcan, N. Petrick, B. Sahiner, H.P. Chan, P.N. Cascade, E.A. Kazerooni, L.M. Hadjiiski; **Title:** "Computerized lung nodule detection on thoracic CT images: combined rule-based and statistical classifier for false positive reduction"; *SPIE*, Vol. 4322, pp. 686-692; **Date of Publication:** 2001; **Place of Publication:** U.S.

Author: O. Karacan, O.A. Ibis, S. Akcay, O. Akkoca, F.O. Eyuboglu, and M. Coskun; **Title:** "Chest radiography and the solitary pulmonary nodule"; *Journal of Radiology*; **Date of Publication:** 2002; **Place of Publication:** unknown.

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DATE CONSIDERED

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EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication with applicant.

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